

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

C.A. No. 1:19-cv-12551-FDS

Hon. F. Dennis Saylor IV

**DEFENDANT GOOGLE LLC'S PROPOSED PRELIMINARY JURY INSTRUCTIONS**

## **I. INTRODUCTION OF PRELIMINARY INSTRUCTIONS**

I will talk first about your duties as jurors, and I'm going to give you some brief preliminary instructions on the law that you're to follow.

At the end of the trial, I'm going to give you complete and detailed instructions on the law. They're going to be in writing. Each one of you is going to have your own copy to read along with me as I read them aloud and to take with you into the jury room.

The reason I'm giving you some instructions now instead of waiting until the end of the trial is to give you a little bit of a framework for considering the evidence and to help you understand it. These preliminary instructions are not the only ones that matter and are not more important than the ones that come later. You must apply the instructions I give you at the end of the trial as a whole.

It's your duty as the jury to decide from the evidence what the facts are. You and you alone are the judges of the facts. You'll hear the evidence, decide the facts, and then apply the facts to the law as I give it to you. You must follow the law as I explain it whether you agree with it or not.

This is a civil case. The plaintiff has the burden of proving its claims by what we call the preponderance of the evidence. That means for the plaintiff to win, each member of the jury has to believe that what the plaintiff claims is more likely true than not. To put it another way, if you were to put both sides of evidence on a scale, the plaintiff would have to tip the scale slightly in its favor to win.

## **II. SUMMARY OF CONTENTIONS**

To help you follow the evidence, I will now give you a summary of the positions of the parties. The parties in this case are the plaintiff Singular Computing LLC, which will be referred to as "Singular" and the defendant Google LLC, which will be referred to as "Google."

The case involves United States Patent Nos. 8,407,273 and 9,218,156, each owned by Singular. For your convenience, the parties and I will often refer to each patent by the last three numbers of its patent number, namely, as the "'273 patent" and the "'156 patent." The parties and I may also refer to these patents collectively throughout trial as "the '273 and '156 patents," the "Asserted Patents," or "the patents-in-suit." You will be provided with a copy of each patent. The parties will provide you with information regarding the technology and claims of the '273 and '156 patents throughout the case.

The patents are made up of several "claims," which define the boundaries of the invention. Two claims are asserted here, claim 53 of the '273 patent, and claim 7 of the '156 patent.

You will be asked to determine:

1. Does Google infringe claim 53 of the '273 patent and/or claim 7 of the '156 patent by using the accused Tensor Processing Unit (TPUv2 and TPUv3)?

2. Are claim 53 of the '273 patent and/or claim 7 of the '156 patent invalid as anticipated?
3. Are claim 53 of the '273 patent and/or claim 7 of the '156 patent invalid for obviousness?
4. If one or more claims of the Asserted Patents is found valid and infringed, what damages (if any) would be adequate to compensate Singular for the infringement and when did the damages begin?
5. If one or more claims of the Asserted Patents is found valid and infringed, did Google willfully infringe those claims of the Asserted Patents?

In deciding the issues I just discussed, you will be asked to consider specific legal standards. I will give you an overview of those standards now and will review them in more detail before the case is submitted to you for your verdict.

The first issue you will be asked to decide is whether Google has infringed the claims of the '273 or '156 patents. Infringement is assessed on a claim-by-claim basis. Therefore, there may be infringement as to one claim but not infringement as to another. In general, to prove infringement, Singular must prove by a preponderance of the evidence that Google made, used, sold, or offered for sale in the United States, or imported into the United States, a product meeting all the requirements of a claim of the '273 and '156 patents. Singular must show that the accused product meets each and every limitation of the asserted claims. I will provide you with more detailed instructions on the requirements infringement at the conclusion of the case.

The next issue you will be asked to decide is whether the '273 and '156 patents are invalid. A patent may be invalid for a number of reasons, including because it claims subject matter that is not new or would have been obvious. For a claim to be invalid because it is not new, Google must show, by clear and convincing evidence, that all of the elements of a claim are present in a single previous device, or sufficiently described in a single previous printed publication or patent. We call these "prior art." If a claim is not new, it is said to be anticipated.

Another way that a claim may be invalid is that it may have been obvious. Even though every element of a claim is not shown or sufficiently described in a single piece of "prior art," the claim may still be invalid if it would have been obvious to a person of ordinary skill in the field of technology of the patent at the relevant time. You will need to consider a number of questions in deciding whether the inventions claimed in the '273 and '156 patents would have been obvious. I will provide you detailed instructions on these questions at the conclusion of the case.

If you decide that any claim of the '273 or '156 patents has been infringed and is not invalid, you will then need to decide any money damages to be awarded to Singular to compensate it for the infringement. A damages award should put Singular in approximately the same financial position that it would have been in had the infringement not occurred, but in no event may the damages award be less than what Singular would have received had it been paid a reasonable royalty. I will instruct you later on the meaning of a reasonable royalty. The damages you award are meant to compensate Singular and not to punish Google. You may not include in your award

any additional amount as a fine or penalty in order to punish Google. I will give you more detailed instructions on the calculation of damages at the conclusion of the case.

### **III. EVIDENCE**

#### **A. THE EVIDENCE**

I have mentioned the word “evidence.” The evidence in this case will include the testimony of witnesses, any documents or objects that come in as exhibits, and any facts the parties might have agreed on. The evidence consists of all of the testimony, both on direct and cross-examination, and all the exhibits regardless of which side introduced them.

There are rules that control what you may consider as evidence. When a lawyer asks a question and the lawyer on the other side thinks it's not permitted, that lawyer may object. When they make an objection, I have to make a ruling. I may do that at sidebar outside of your hearing.

Obviously, I don't keep things from you just to frustrate you, but sometimes I do need to decide things outside of your hearing. I'll do what I can to keep that to a minimum.

#### **B. WHAT IS NOT EVIDENCE**

Certain things are not evidence. Statements and arguments by lawyers are not evidence. The lawyers are not the witnesses. A question by a lawyer standing alone is not evidence. Again, the lawyer is not the witness. It's the question and answer taken together that is the evidence.

Objections are not the evidence. Lawyers have a duty to object if they think something is improper. If I sustain an objection, in other words, if I keep something out, it means I'm not allowing the answer to be given or I won't allow the exhibit to come into evidence, and you shouldn't try to guess what the answer might have been or what the exhibit might have said.

I hope it won't happen, but if it does, if I have to tell you to disregard something or I strike it from the record, it's not evidence, and you may not consider it.

Anything you might see or hear about this case outside the courtroom is not evidence. You must decide the case based on what you see and hear in court. And sometimes evidence comes in for a limited purpose only. You can only use it for one thing and not anything else. If that happens, I'll explain it to you when that occurs.

#### **C. CREDIBILITY OF WITNESSES**

In deciding what the facts are, you may have to decide what testimony you believe and what testimony you do not believe. You may believe everything a witness says, or only part of it, or none of it. It's entirely up to you.

#### **D. IMPROPER CONSIDERATIONS**

Now, many people watch television shows or movies about courts or lawyers, or the justice system, and sometimes people are affected by that when they serve as jurors. Television shows and movies can create false expectations about real life, for example, how a trial is going to proceed or what evidence might look like.

You must decide this case solely on the evidence. Do not decide the case, even in part, on something you saw on TV or in a movie. That's improper and it's unfair.

#### **IV. CONDUCT OF THE JURY<sup>1</sup>**

##### **A. NO DISCUSSIONS ABOUT THE CASE**

To ensure that the trial is fair, we have rules that the jurors have to follow, and the first rule is not to talk among yourselves about the case until the time to go to the jury room to decide on your verdict. If anyone should try to talk to you about the case, including a fellow juror, bring it to my attention promptly. There are good reasons for this ban on discussions, the most important being the need for you to keep an open mind throughout the presentation of evidence.

You also must not talk to anyone about this case or communicate electronically with anyone about the case. This includes your family and friends. You may not communicate orally with anyone about the case on your cell phone, smart phone, or portable or fixed computer or device of any kind; or use these devices to communicate electronically by messages or postings of any kind including e-mail, instant messages, text messages, text or instant messaging services [such as Twitter/X], or through any blog, website, internet chat room, or by way of any other social networking websites or services [including Facebook, LinkedIn, and YouTube]. If any lawyer, party, or witness does not speak to you when you pass in the hall, ride the elevator, or the like, please know that it is because they are not supposed to talk or visit with you, either.

##### **B. NO CONCLUSIONS UNTIL THE CLOSE OF EVIDENCE**

Second, do not reach any conclusion on the claims or defenses until all of the evidence is in. Keep an open mind until you start your deliberations at the end of the case. To ensure that the trial is fair, we have rules that the jurors have to follow, and the first rule is not to talk among yourselves about the case until the time to go to the jury room to decide on your verdict.

##### **C. NO INDEPENDENT RESEARCH**

Third, do not read or listen to anything related to this case that is not admitted into evidence. By that I mean, if there is a newspaper article or radio or television report relating to this case, do not read the article or watch or listen to the report. In addition, do not try to do any independent research or investigation on your own on matters relating to the case or this type of case. Do not do any research on the internet, for example. You are to decide the case upon the evidence presented at trial. In other words, you should not consult dictionaries or reference materials, search the internet, websites, blogs, or use any other electronic tools to obtain information about this case

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<sup>1</sup> *SiOnyx v. Hamamatsu*, No. 1:15-cv-13488-FDS, Dkt. 769 at 84-90 (D. Mass. May 14, 2019).

or to help you decide the case. Please do not try to find out information from any source outside the confines of this courtroom.

#### **D. RESPECT FOR THE COURTROOM**

Finally, please be respectful of the court. You should not bring food or drink into the courtroom, and you should not chew gum during the trial, and please try to dress appropriately. Again, these rules are important. They're intended to make sure that the trial is fair, so I'm going to instruct you to follow them. During the course of the trial, if you have a problem of some kind, please raise your hand. If it's something in court, we'll try to take care of the problem. If you need to communicate with me and we're not in court, please give a signed note to the court security officer to give to me. If you have an issue, you have to bring it to my attention because I won't know otherwise, and, again, we'll try to take care of it the best we can.

#### **E. COURT REPORTER**

As you can see, we have a court reporter who's creating a record of everything that happens in this trial. Sometimes jurors think that they'll have a transcript when they go back to the jury room. That is not true. You'll not be given a transcript. There are a number of different reasons for that. One of them is strictly practical. There's usually not time to prepare one. The court reporter has a very difficult job. It's a time-consuming task to take a raw record, which she is creating, and turn it into a final transcript. So because you won't have a transcript, you should listen carefully and take whatever notes you think may be necessary to help you remember.

#### **F. TRIAL PROCEDURE**

We're going to begin by showing a video produced by the U.S. Courts about patent cases, which hopefully will provide you a little bit of background instruction. We'll see the video, and then the lawyers will give their opening statements. Each lawyer or each side will have a chance to tell you about the evidence that they intend to put before you. Again, the opening statements are not evidence. The purpose is to help you understand the case and what the parties will try to prove, but they're not evidence. The plaintiff will then go first, call its witnesses, and put on its evidence. The defendant will then put on its evidence and call its witnesses. Both sides, of course, will have an opportunity to cross-examine each other's witnesses.

After the evidence is closed, both sides will be given time for closing arguments in which the lawyers will have an opportunity to summarize and try to help you understand the evidence. And, again, the closings are not evidence either.

I'll then give you your instructions in writing and orally about the rule of law that you're to follow, and you'll leave the courtroom together to make your decision. And after you've decided the case and fill out the verdict form that you'll be given, you'll return your verdict here in open court, and then you'll be discharged. You will never have to reveal your deliberations or explain your verdict to anyone. So, again, thank you for your patience and cooperation.

**GOOGLE’S PROPOSED FINAL JURY INSTRUCTION  
AT THE CLOSE OF EVIDENCE**

**I. DUTY OF THE JURY TO FIND FACTS AND FOLLOW THE LAW<sup>2</sup>**

It is your duty to find the facts from the evidence admitted in this case. To those facts, you must apply the law as I give it to you. The determination of the law is my duty as the Judge. It is your duty to apply the law exactly as I give it to you, whether you agree with it or not.

You must follow all of my instructions and not single out some and ignore others. They are all important.

You must not interpret these instructions, or anything I may have said or done, as a suggestion by me as to what verdict you should return -- that is a matter entirely for you to decide.

**II. BURDEN OF PROOF—PREPONDERANCE OF THE EVIDENCE<sup>3</sup>**

A party ordinarily has the burden of proving its claim by what is called the “preponderance of the evidence.”

The “preponderance of the evidence” means that for the party with the burden of proof to prevail, the jury must believe that what it claims is more likely true than not. To put it another way, if you were to put one side’s evidence and the other side’s evidence on opposite sides of a scale, the party with the burden of proof would have to make the scale tip slightly in its direction.

**III. BURDEN OF PROOF—CLEAR AND CONVINCING EVIDENCE<sup>4</sup>**

In some instances, a party has the burden of proving a claim or defense by “clear and convincing” evidence, rather than by the “preponderance of the evidence.”

That means for the party with the burden of proof to prevail, it must persuade you that it is highly probable that what it claims is true. Put another way, you must have a clear conviction that it is true.

“Clear and convincing evidence” is a higher standard than proof by a “preponderance of the evidence.” It is a lower standard, however, than proof “beyond a reasonable doubt,” which is the standard used in criminal cases.

I will explain later in these instructions when the “clear and convincing evidence” standard applies, rather than the “preponderance of the evidence” standard.

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<sup>2</sup> Sample Patent Instructions at 4, *SiOnyx v. Hamamatsu*, No. 1:15-cv-13488-FDS (D. Mass. 2019) (received July 6, 2023) (“SiOnyx Sample Instructions”).

<sup>3</sup> SiOnyx Sample Instructions at 5.

<sup>4</sup> SiOnyx Sample Instructions at 6.

#### **IV. EVIDENCE**

##### **A. VERDICT BASED SOLELY ON THE EVIDENCE; IMPROPER CONSIDERATIONS<sup>5</sup>**

Your verdict must be based solely upon the evidence.

You may not base your verdict on any personal feelings, prejudices, or sympathies you may have about the plaintiff or the defendant or about the nature of the claims alleged.

##### **B. ALL PERSONS EQUAL BEFORE THE LAW<sup>6</sup>**

This case should be considered and decided as an action between persons of equal standing in the community, of equal worth, and holding the same or similar stations in life. A corporation or other entity is entitled to a fair trial the same as an individual person.

##### **C. THE EVIDENCE<sup>7</sup>**

The evidence in this case consists of the sworn testimony of witnesses, both on direct and cross-examination, the exhibits that have been received into evidence, and any facts to which the parties have agreed or stipulated. You should consider all of the evidence no matter what form it takes and no matter which party introduced it.

Whether the plaintiff has sustained its burden of proof does not depend upon the number of witnesses they have called or upon the number of exhibits they have offered, but instead upon the nature and quality of the evidence presented.

##### **D. WHAT IS NOT EVIDENCE<sup>8</sup>**

Certain things are not evidence.

Arguments and statements by lawyers are not evidence. The lawyers are not witnesses. What they say in their opening statements, closing arguments, and at other times is intended to help you interpret the evidence, but it is not evidence. If the facts as you remember them from the evidence differ from the way the lawyers have stated them, your memory of the facts should control.

Certain models, reproductions, summaries, and graphics have been used to illustrate certain evidence and testimony from witnesses. Unless I have specifically admitted them into evidence, these models, reproductions, charts, summaries, and graphics are not themselves evidence, even if they refer to, identify, or summarize evidence, and you will not have these demonstratives in the jury room

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<sup>5</sup> SiOnyx Sample Instructions at 7.

<sup>6</sup> SiOnyx Sample Instructions at 8.

<sup>7</sup> SiOnyx Sample Instructions at 9.

<sup>8</sup> SiOnyx Sample Instructions at 10.



Questions by lawyers, standing alone, are not evidence. Again, the lawyers are not witnesses. The question and the answer taken together are the evidence.

Objections by lawyers are not evidence. Lawyers have a duty to their client to object when they believe a question or an exhibit is improper under the rules of evidence. You should not be influenced by any objection or by my ruling on it, and you should not speculate or guess about what the answer might have been, or what an exhibit might have said.

Anything that I have struck or instructed you to disregard is not evidence.

Anything you may have seen or heard when the Court was not in session is not evidence. You must decide the case solely on the evidence received at trial.

#### **E. KINDS OF EVIDENCE—DIRECT AND CIRCUMSTANTIAL<sup>9</sup>**

Evidence may take the form of either “direct evidence” or “circumstantial evidence.” “Direct evidence” is direct proof of a fact, such as testimony from an eyewitness that the witness saw something. “Circumstantial evidence” is indirect evidence. That is, proof of one or more facts from which you could draw a reasonable inference that another fact exists, even though it has not been proved directly.

You are entitled to consider both direct and circumstantial evidence. The law permits you to give equal weight to both. It is for you to decide how much weight to give to any particular piece of evidence, whether direct or circumstantial.

#### **F. INFERENCES<sup>10</sup>**

Although you may consider only the evidence presented in the case, you are not limited to the plain statements made by witnesses or contained in the documents. In other words, you are not limited solely to what you saw and heard as the witnesses testified.

You are also permitted to draw reasonable inferences from the facts, if you believe those inferences are justified in light of common sense and personal experience. An inference is simply a deduction or conclusions that may be drawn from the facts that have been established.

Any inference you draw must be reasonable and based on the facts as you find them. Inferences may not be based on speculation or conjecture.

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<sup>9</sup> SiOnyx Sample Instructions at 11.

<sup>10</sup> SiOnyx Sample Instructions at 12.

**G. CAUTIONARY AND LIMITING INSTRUCTIONS<sup>11</sup>**

A particular item of evidence is sometimes received for a limited purpose only. That is, it can be used by you only for one particular purpose and not for any other purpose. I have told you when that occurred and instructed you on the purposes for which the item can and cannot be used.

**H. STIPULATIONS<sup>12</sup>**

Some of the evidence has been received in the form of stipulations. A stipulation simply means that the plaintiff and the defendant accept the truth of a particular proposition or fact or facts.

Because there is no disagreement, there is no need for evidence as to an issue covered by a stipulation, apart from the stipulation itself. You may accept the stipulation as a fact to be given whatever weight you choose.

**I. CREDIBILITY OF WITNESSES<sup>13</sup>**

You do not have to accept the testimony of any witness if you find that the witness is not credible. You must decide which witnesses to believe, considering all of the evidence and drawing upon your common sense and personal experience. You may believe all of the testimony of a witness, or some of it, or none of it. You alone are the judges of each witness's credibility.

In deciding whether to believe testimony of each witness, you may want to take into consideration such factors as their conduct and demeanor while testifying, any apparent fairness or unfairness they may have displayed, any interest they may have in the outcome of the case, any prejudice or bias they may have shown, their opportunities for seeing or knowing the things about which they have testified, the reasonableness or unreasonableness of the events as they have been related to you in their testimony, and any other evidence that tends to support or contradict their versions of the events.

**J. DEPOSITION TESTIMONY<sup>14</sup>**

The plaintiff and the defendant presented video deposition testimony given under oath by a number of witnesses. You should consider that evidence in the same manner as testimony given at the trial.

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<sup>11</sup> SiOnyx Sample Instructions at 13.

<sup>12</sup> SiOnyx Sample Instructions at 14.

<sup>13</sup> SiOnyx Sample Instructions at 15.

<sup>14</sup> SiOnyx Sample Instructions at 16.

**K. PRIOR INCONSISTENT STATEMENTS<sup>15</sup>**

The testimony of a witness may be discredited or impeached by showing that he or she previously made statements that are inconsistent with his or her present testimony. If a witness made inconsistent statements about any significant matter, you have a right to distrust the testimony of that witness in other respects. You may reject all of the testimony of that witness or give it such credibility as you may think it deserves.

Sometimes, of course, people make innocent mistakes, particularly as to unimportant details. Not every contradiction or inconsistency is necessarily important. Again, you, alone, are the judges of each witness's credibility.

**L. EXPERT TESTIMONY<sup>16</sup>**

You have heard testimony from expert witnesses who were permitted to explain certain technical issues or to express certain opinions about certain subjects. An expert witness who has special knowledge, skill, experience, training, or education on a particular topic may testify and provide an explanation or state an opinion concerning such matters.

You may accept or reject that testimony in whole, or in part. In weighing the testimony, you should consider the expert witnesses' education and experience and the soundness of the reasons given for the opinion. You should also consider the credibility of the testimony, as you would with any witness.

**M. NOTE-TAKING<sup>17</sup>**

You are permitted to take notes, but some cautions apply. You should bear in mind that not everything that is written down is necessarily what was said. When you return to the jury room to discuss the case, do not assume simply because something appears in somebody's notes that it necessarily took place in court. Notes are an aid to recollection, nothing more.

**N. EXHIBIT NUMBERS<sup>18</sup>**

The numbers assigned to the exhibits are for convenience and in order to ensure an orderly procedure. You should draw no inference from the fact that a particular exhibit was assigned a particular number, or that there may be gaps in the number sequence.

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<sup>15</sup> SiOnyx Sample Instructions at 17.

<sup>16</sup> SiOnyx Sample Instructions at 18.

<sup>17</sup> SiOnyx Sample Instructions at 19.

<sup>18</sup> SiOnyx Sample Instructions at 20.

## **V. ELEMENTS OF THE CLAIMS—INTRODUCTION<sup>19</sup>**

I am now going to give you some instructions on the nature of the plaintiff's causes of action and what the plaintiff must prove in order to succeed on each cause of action.

The plaintiff is Singular Computing LLC, which I will refer to as Singular. The defendant is Google LLC, which I will refer to as Google.

Singular has brought two causes of action against Google:

- a cause of action for infringement of claim 53 of U.S. Patent Number 8,407,273 (the '273 patent), and
- a cause of action for infringement of claim 7 of U.S. Patent Number 9,218,156 (the "'156 patent").

Google has denied liability as to both of these causes of action. In addition, Google has asserted that both causes of action for patent infringement are barred because the asserted patent claims are invalid.

I will now explain what the parties have to prove in order to succeed on their various causes of action and defenses.

## **VI. PATENTS GENERALLY<sup>20</sup>**

Patents are granted by the United States Patent and Trademark Office (sometimes called "the PTO").

The process of obtaining a patent is called patent "prosecution." To obtain a patent, one must first file an application with the PTO. The PTO is an agency of the federal government and employs examiners who review applications for patents. If the application is granted, the PTO issues the patent.

A patent includes what is called a "specification," which must contain a written description of the claimed invention explaining what the claimed invention is, how it works, how to make it, and how to use it.

A patent also includes what are called the "claims." The "claims" of a patent define the boundaries of its protection and give notice to the public of those boundaries. Put another way, the words of the claims define what a patent covers. Patents do not cover unclaimed features and cannot cover solely what is already known in the prior art. Patent claims are different from legal claims, which are also known as causes of action. You may have heard the attorneys and witnesses in this case reference both kinds of claims throughout the trial. For clarity, these instructions will refer to patent claims as "claims" and legal claims as "causes of action."

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<sup>19</sup> SiOnyx Sample Instructions at 21.

<sup>20</sup> SiOnyx Sample Instructions at 24.

The coverage of a patent must be assessed claim by claim, and each claim is effectively treated as if it were a separate patent. Each claim may be narrower or broader than another claim by setting forth more or fewer requirements. Therefore, what a patent covers depends, in turn, on what each of its claims covers.

When another company makes, uses, or sells a product that falls within the scope of a patent claim, that product “infringes” on the patent.

## VII. PATENT INFRINGEMENT–ELEMENTS<sup>21</sup>

Singular has brought two causes of action for patent infringement against Google. The patents at issue are owned by Singular. They are United States Patent Nos. 8,407,273 and 9,218,156, which I will call the “’273 patent” and the “’156 patent.”

Singular contends that Google products infringe one claim of the ’273 patent and one claim of the ’156 patent. Specifically, Singular contends that Google infringes claim 53 of the ’273 patent and claim 7 of the ’156 patent by using its TPuv2 and TPuv3 chips, which Singular asserts meet every requirement for claim 53 of the ’273 patent and claim 7 of the ’156 patent. Google denies infringement and further contends those claims are invalid.

To prove a cause of action for patent infringement, Singular must prove that Google used a product that meets each and every requirement of either claim 53 of the ’273 patent or claim 7 of the ’156 patent. If Google’s TPuv2 and TPuv3 do not meet one or more of the requirements of a claim, Google does not infringe that claim. You must determine infringement with respect to each patent claim separately.<sup>22</sup>

## VIII. INDEPENDENT AND DEPENDENT CLAIMS<sup>23</sup>

This case involves two separate patent claims—one from the ’273 patent and one from the ’156 patent. Both of these claims are dependent claims.

An “*independent claim*” sets forth all of the requirements that must be met in order to be covered by that claim. Thus, it is not necessary to look at any other claim to determine what an “independent claim” covers.

A “*dependent claim*” does not itself recite all of the requirements of the claim but refers to another claim for some of its requirements. In this way, the claim “depends” on another claim. A dependent claim incorporates all of the requirements of the claim to which it refers. The dependent claim then adds its own additional requirements. To determine what a dependent claim covers, it is necessary to look at both the dependent claim and any other claim to which it refers. If you find that an independent claim is not infringed, there cannot be infringement of any dependent claim that depends directly or indirectly from that claim.

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<sup>21</sup> SiOnyx Sample Instructions at 28.

<sup>22</sup> AIPLA Model Jury Instructions § 3.2.

<sup>23</sup> SiOnyx Sample Instructions at 29.

In this case, claim 53 of the '273 patent is a dependent claim that depends from dependent claim 43, which in turn depends from independent claim 36.

Claim 7 of the '156 patent is a dependent claim that depends from dependent claim 3, which in turn depends from dependent claim 2, which itself depends from independent claim 1.

## **IX. PATENT INFRINGEMENT: CLAIM INTERPRETATION<sup>24</sup>**

Before you decide whether Google has infringed the asserted claims of the '273 or '156 patents and whether the asserted claims of the '273 or '156 patents are invalid, you will have to understand patent claims.

The claims are intended to define, in words, the boundaries of the inventor's rights. Only the claims of the patent can be infringed. Neither the written description, nor the drawings, of a patent can be infringed. Each of the claims must be considered individually. A claim may be narrower or broader than another claim by setting forth more or fewer requirements. You must use the same claim meaning for both your decision on infringement and your decision on invalidity.

It is my role to define the terms of the claims, and it is your role to apply those definitions to the issues that you are asked to decide in this case. For purposes of this case, you must use the following definitions:

- The term “execution unit” as used in claim 53 of the '273 patent and claim 7 of the '156 patent means “processing element comprising an arithmetic circuit paired with a memory circuit.” Specifically, an “execution unit” is a “tangible object” that comprises “an arithmetic circuit paired with a memory circuit.”
- The term “low precision” as used in claim 53 of the '273 patent and claim 7 of the '156 patent means
  - for at least  $X=5\%$  of the possible valid inputs to the first operation, the statistical mean, over repeated execution of the first operation on each specific input from the at least  $X\%$  of the possible valid inputs to the first operation, of the numerical values represented by the first output signal of the LPHDR unit executing the first operation on that input differs by at least  $Y=0.05\%$  from the result of an exact mathematical calculation of the first operation on the numerical values of that same input.

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<sup>24</sup> SiOnyx Sample Instructions at 30; Model Patent Jury Instructions § B.2.1, Federal Circuit Bar Association, 2020, available at <https://fedcirbar.org/IntegralSource/Model-Patent-Jury-Instructions> (last visited June 28, 2023) (hereafter, “FCBA Model Jury Instructions”).

- The term “high dynamic range” as used in claim 53 of the ’273 patent and claim 7 of the ’156 patent means “the dynamic range of the possible valid inputs to the first operation is at least as wide as from 1/1,000,000 through 1,000,000.”

For any words in the claims for which I have not provided you with a definition, you should apply the plain and ordinary meaning of those words as it would be understood by a person of ordinary skill in the field of technology of the ’273 and ’156 patents at the time of the alleged invention. You should not take my definitions of the language of the claims as an indication that I have a view regarding how you should decide the issues that you are being asked to decide. Those issues are for you to decide.

## **X. DIRECT INFRINGEMENT**

To prove direct infringement of claim 53 of the ’273 patent or claim 7 of the ’156 patent in this case, Singular must prove by a preponderance of the evidence, that Google made, used, sold, or offered for sale within the United States an accused product, during the time those patents were in force, that included each and every requirement or limitation of the claim literally. If Google made, used, sold, or offered for sale an accused product outside the United States, you cannot find that product infringes the asserted claims, even if it includes each and every requirement or limitation of the claim literally. Singular has the burden of proving by a preponderance of the evidence that Google’s conduct occurred inside the United States.

A patent claim is infringed only if the accused product includes each and every limitation in the Asserted Claim either as I have explained the claim language to you or, if I did not explain it, according to its ordinary meaning as understood by one of ordinary skill in the art at the time of the alleged invention. However, the presence of other features in the accused product beyond the claimed elements does not avoid infringement, as long as every claimed element is present. By the same token, if an accused product omits any element recited in a claim, then you must find that that particular product does not directly infringe that claim.

The Asserted Claims are apparatus claims. An apparatus claim covers what a device is, not what a device does. Thus, to find that Google’s accused products infringe claim 53 of the ’273 patent and/or claim 7 of the ’156 patent you must find those products meet each and every limitation in claim 53 of the ’273 patent and/or claim 7 of the ’156 patent without considering how the accused products are used by Google or its customers.

## **XI. WILLFUL INFRINGEMENT<sup>25</sup>**

In this case, Singular contends that Google not only infringed the asserted claims of the ’273 and ’156 patents but did so willfully. If you find that Google infringed claim 53 of the ’273 patent or claim 7 of the ’156 patent and you find the infringed claim is valid, then you will be asked to determine whether Google infringed willfully.

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<sup>25</sup> FCBA Model Jury Instructions § 3.10.



Willfulness requires you to determine that it is more likely than not that Google knew of the Singular’s patent, knew that its acts would constitute infringement of the asserted claim, and intended to infringe that claim specifically.<sup>26</sup> If Singular fails to satisfy that burden, for example because it failed to prove that Google had knowledge of the patent or did not believe its actions constituted infringement, you may not find willful infringement.<sup>27</sup>

If you find that Google knew of the ’273 and/or ’156 patents at the time of infringement, that alone is not sufficient to show willfulness. Singular must also prove that it is more likely than not that Google knowingly and intentionally infringed the patent.<sup>28</sup> If Google reasonably believed that it was not infringing one or both of the patent claims, or reasonably believed that one or both of the claims was invalid, you may not find that Google willfully infringed.<sup>29</sup>

If you determine that any infringement was willful, you may not allow that decision to affect the amount of any damages you award for infringement.<sup>30</sup>

## **XII. INVALIDITY DEFENSES—OVERVIEW<sup>31</sup>**

Google contends that the asserted claims are invalid for two separate reasons. Those reasons are as follows:

First, because each claim was anticipated by a prior art reference.

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<sup>26</sup> See, e.g., *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 987-988 (Fed. Cir. 2021) (“To establish willfulness, the patentee must show the accused infringer had a specific intent to infringe at the time of the challenged conduct); *BASF Plant Sci., LP v. Commonwealth Sci. & Indus. Rsch. Organisation*, 28 F.4th 1247, 1274 (Fed. Cir. 2022) (similar); *Teva Pharms. Int’l GmbH v. Eli Lilly & Co.*, No. 18-CV-12029-ADB, 2022 WL 4824318, at \*15 (D. Mass. Oct. 3, 2022) (similar); cf. *intent*, Black’s Law Dictionary (11th Ed. 2019) (defining “specific intent” as “[t]he intent to accomplish the precise criminal act that one is later charged with.”).

<sup>27</sup> *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1341 (Fed. Cir. 2016).

<sup>28</sup> *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1932–33 (2016) (describing subjective willfulness as “intentional and knowing”); *SRI Int’l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1309–10 (Fed. Cir. 2019) (holding that designing products later determined to be infringing, without more, is insufficient to support a finding of willful infringement). Although an award of enhanced damages requires “egregious” behavior, the Federal Circuit has held that that is an issue for the district court, not the jury, and that the jury should not consider whether conduct was “egregious” or “worthy of punishment” in deciding whether infringement was willful. See *Eko Brands, LLC v. Adrian Rivera Maynez Enters., Inc.*, 946 F.3d 1367, 1377–79 (Fed. Cir. 2020).

<sup>29</sup> *Eko Brands, LLC v. Adrian Rivera Maynez Enters., Inc.*, 946 F.3d 1367, 1377–79 (Fed. Cir. 2020).

<sup>30</sup> *Eko Brands, LLC v. Adrian Rivera Maynez Enters., Inc.*, 946 F.3d 1367, 1378 (Fed. Cir. 2020); see also *WesternGeco*, 837 F.3d at 1364 (noting that after a finding of willfulness, “the question of enhanced damages . . . is one that must be left to the district court’s discretion”), *rev’d on other grounds*, 138 S. Ct. 2129 (2018).

<sup>31</sup> SiOnyx Sample Instructions at 35.



Second, because each claim would have been “*obvious*” in light of the prior art.

### **XIII. INVALIDITY DEFENSES—BURDEN OF PROOF**

A patent issued by the PTO is presumed to be valid. That presumption of validity applies to each claim independent of the validity of any other claim in the patent.<sup>32</sup>

But the PTO sometimes issues invalid patent claims, and issued claims can be found invalid in court. In this case, you have the ultimate responsibility for deciding whether the claims of the patent are valid or invalid. In making your determination, you must consider the claims individually, as you did when you considered whether each claim was infringed or not. If clear and convincing evidence demonstrates that a claim of the patents fails to meet any requirement of the patent laws, then that claim is invalid.

In order to rebut that presumption, a party challenging the validity of a claim—here, Google—must prove the claim is invalid by clear and convincing evidence.<sup>33</sup> The fact that any particular reference was or was not considered by the Patent Office does not change Google’s burden of proof. However, in making your decision whether Google has demonstrated that a claim is invalid by clear and convincing evidence, you may consider whether Google has presented any materially new prior art references that the Patent Office had no opportunity to evaluate. Google’s burden may be easier to meet if all material facts were not before the Patent Office when it issued a patent.<sup>34</sup>

### **XIV. INVALIDITY DEFENSES—CONSIDER EACH CLAIM SEPARATELY<sup>35</sup>**

You must consider the validity of each claim separately. As to each claim, if you find that Google has proven that the claim is invalid for any (or all) of the two asserted reasons, you should find for Google as to that claim.

### **XV. INVALIDITY DEFENSES—DEFINITIONS GENERALLY<sup>36</sup>**

There are two terms relating to Google’s invalidity defenses that I will define at the outset: “prior art” and “person of ordinary skill in the art.”

I will then instruct you on each of the reasons that Google contends that the asserted claims are invalid and explain what Google must establish by clear and convincing evidence to succeed on each issue.

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<sup>32</sup> SiOnyx Sample Instructions at 36.

<sup>33</sup> SiOnyx Sample Instructions at 36.

<sup>34</sup> *Microsoft Corp. v. i4i Ltd. P’ship*, 131 S. Ct. 2238, 2251 (2011); *Mendenhall v. Cedarapids, Inc.*, 5 F.3d 1557, 1563–64 (Fed. Cir. 1993).

<sup>35</sup> SiOnyx Sample Instructions at 37.

<sup>36</sup> SiOnyx Sample Instructions at 38.

**XVI. INVALIDITY DEFENSES—“PRIOR ART”<sup>37</sup>**

The first term is “prior art.” Under the patent laws, a person is entitled to a patent only if the invention claimed in the patent is new and not obvious in light of what came before it, what is referred to as the “prior art.” Prior art can include research, testing, experiments, trials, and the like if shown to be sufficiently accessible to persons of ordinary skill in the art.<sup>38</sup>

In this case, Google contends that the prior art includes the VFLOAT system and supporting documentary evidence that disclose the claimed invention or elements of the claimed invention.

To be prior art, the item must have been made, known, used, or published either (1) before the invention in this case was made or (2) more than one year before the filing date of the patent application (that is, June 19, 2009).

Google contends that the VFLOAT system is prior art because it was both made and publicly known, used, or otherwise accessible to the public through public disclosures before the filing date of the patent.<sup>39</sup>

The VFLOAT system was publicly used if it was used by a person not under any limitation, restriction, or obligation of secrecy. Factors relevant to determining whether a claimed invention was in public use include: the nature of the activity that occurred in public; public access to the use; confidentiality obligations imposed upon observers; commercial exploitation; and the circumstances surrounding any testing and experimentation. An invention is publicly used if it is used by the inventor or by a person who is not under any limitation, restriction, understanding, or obligation of secrecy to the inventor. The absence of affirmative steps to conceal the use of the invention is evidence of a public use. However, secret use by a third party is not public, unless members of the public or employees of the third party have access to the invention.<sup>40</sup>

**XVII. INVALIDITY DEFENSES—“PERSON OF ORDINARY SKILL IN THE ART”<sup>41</sup>**

The second term is “person of ordinary skill in the art.” Under the patent laws, a number of issues turn on how a “person of ordinary skill in the art” would consider or interpret a particular set of facts.

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<sup>37</sup> SiOnyx Sample Instructions at 39.

<sup>38</sup> “[W]e hold that public testing before the critical date by a third party for his own unique purposes ... when such testing is independent of and not controlled by the patentee, is an invalidating public use, not an experimental use.” *Baxter Int’l, Inc. v. COBE Labs., Inc.*, 88 F.3d 1054, 1060–61 (Fed. Cir. 1996).

<sup>39</sup> FCBA Model Jury Instructions § 4.3a-2.

<sup>40</sup> AIPLA Model Jury Instructions § 6.2.1.

<sup>41</sup> SiOnyx Sample Instructions at 40.

For the field of art relevant to the patents in this case, a person of ordinary skill in the art is someone who would have had at least a bachelor's degree in Electrical Engineering, Computer Engineering, Applied Mathematics, or the equivalent, and at least two years of academic or industry experience in computer architecture. More education could be considered as a substitute for experience, and vice versa.

## **XVIII. INVALIDITY DEFENSES—ANTICIPATION<sup>42</sup>**

The first reason that Google contends that the asserted claims are invalid is because the claimed invention was “*anticipated*.” A person cannot obtain a patent on a claimed invention if every element of that claimed invention was disclosed in a single piece of prior art. In other words, the claimed invention must be new. If a claimed invention is not new, we say that it is “anticipated” by the prior art.

To anticipate the invention, the prior art does not have to use the same words as the claim, but all of the requirements of the claim must have been disclosed. The claim requirements may either be disclosed expressly or inherently—that is, necessarily implied—such that a person having ordinary skill in the art in the technology of the invention, looking at that one reference, could make and use the claimed invention.

An invention that is anticipated by the prior art is not entitled to patent protection. Google contends that claim 53 of the '273 patent and claim 7 of the '156 patent are invalid because the claimed inventions are anticipated by the VFLOAT system.

## **XIX. INVALIDITY DEFENSES—OBVIOUSNESS<sup>43</sup>**

The second reason that Google contends that the asserted claims are invalid is because the claimed invention was “*obvious*.” To be valid, the claimed invention must not have been “*obvious*” to a person of ordinary skill in the art as of its priority date. Here, the priority date for claim 53 of the '273 patent and for claim 7 of the '156 patent is June 19, 2009. Google contends that the asserted claims are invalid because the claimed inventions would have been obvious.

In determining whether a claimed invention would have been obvious, you must consider (1) the level of ordinary skill in the art that someone would have had on June 19, 2009; (2) the scope and content of the prior art; (3) any differences between the prior art and the claimed invention; and (4) so-called objective evidence, which I will describe shortly. It is not necessary that Google show that the invention was identically disclosed or described by someone else. When assessing obviousness, you must consider claim 53 of the '273 patent and claim 7 of the '156 patent separately.

Obviousness is determined from the perspective of a person of ordinary skill in the art. The issue is not whether the claimed invention would have been obvious to you, or to me as a judge, or to a genius in the field of the invention. Rather, the question is whether or not the invention

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<sup>42</sup> SiOnyx Sample Instructions at 47; FCBA Model Jury Instructions § B.4.3b-1.

<sup>43</sup> SiOnyx Sample Instructions at 41-42.

would have been obvious to a person of ordinary skill in the art. Such a person is presumed to know all of the prior art, not just what the inventor may have known. When faced with a problem in his or her field, such a person is able to apply his or her creativity, experience, and ability to the problem and also look to the prior art to help solve the problem.

Obviousness is also determined as of the priority date of the alleged invention. Thus, you must avoid using hindsight. That is, you should consider only what was known at the time, not what we know today. Likewise, you should not consider what was learned from the teachings of the patent, and you should not use the patent as a road map for selecting and combining items of prior art. You must put yourself in the place of a person of ordinary skill in the art on June 19, 2009.

The mere repetition or duplication of an element of the claimed invention does not meaningfully distinguish the invention from the prior art unless a new or unexpected result is produced from the repetition or duplication.<sup>44</sup> For example, increasing the quantity of a specific component of an invention to yield a different number or quantity as compared to the prior art is not a patentable distinction over the prior art.

In determining whether the claimed invention is obvious, you must take into account any objective evidence that may shed light on whether or not the claimed invention is obvious, such as: whether or not the claimed invention was invented independently by other persons either before it was invented by Singular or at roughly the same time.

## **XX. INVALIDITY DEFENSES—OBVIOUSNESS—SCOPE AND CONTENT OF THE PRIOR ART<sup>45</sup>**

In considering whether the claimed invention was obvious, you must, among other things, determine the “scope and content of the prior art.”

Determining the “scope and content of the prior art” means that you should determine what is disclosed in the prior art relied on by Google. You must decide whether this prior art was reasonably relevant to the particular problem the inventor was attempting to solve in making the invention covered by the asserted patent claims. Such relevant prior art includes prior art in the field of the alleged invention, and also prior art from other fields that a person of ordinary skill in the art would look to when attempting to solve the problem.

Google relies on prior art that was not considered by the PTO during examination. You may consider whether that prior art is significantly different and more relevant than the prior art that the PTO did consider. If you decide it is different and more relevant, you may weigh that prior

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<sup>44</sup> “The duplication of elements is not patentable unless a new or unexpected result is produced.” *Optivus Tech., Inc. v. Ion Beam Applications S.A.*, No. CV03-2052 SJO(VBKX), 2005 WL 6070811, at \*7 (C.D. Cal. Mar. 14, 2005), *aff’d*, 469 F.3d 978 (Fed. Cir. 2006) (citing *In re Harza*, 274 F.2d 669, 671 (C.C.P.A. 1960)).

<sup>45</sup> SiOnyx Sample Instructions at 43.

art more heavily when considering whether Google has carried its clear-and-convincing burden of proving invalidity.<sup>46</sup>

In determining the differences between the invention covered by the asserted patent claims and the prior art, you should not look at individual differences in isolation. You must consider the claimed invention as a whole and determine whether or not it would have been obvious in light of all the prior art.

## **XXI. INVALIDITY DEFENSES—OBVIOUSNESS—COMBINATION OF PRIOR ART<sup>47</sup>**

The existence of every element of the claimed invention in the prior art does not necessarily prove that the claimed invention was obvious. Most, if not all, inventions rely on building blocks of prior art.

An invention is not necessarily obvious even if all its elements appeared in the prior art. Many inventions are made of building blocks that were already known beforehand. In considering whether a claimed invention would have been obvious, you should consider, without hindsight, whether, as of June 19, 2009, there was a reason that would have prompted a person having ordinary skill in the field of the invention to combine the known elements in the prior art in a way the claimed invention does, taking into account such factors as:

- Whether the claimed invention was merely the predictable result of using prior art elements according to their known functions;
- Whether the claimed invention provides an obvious solution to a known problem in the relevant field;
- Whether the prior art teaches or suggests the desirability of combining elements claimed in the invention;
- Whether the prior art teaches away from combining elements claimed in the invention;
- Whether it would have been obvious to try the combinations of elements, such as when there is a design need or market pressure to solve a problem and there are a finite number of identified predictable solutions; and
- Whether the change resulted more from design incentives or other market forces.

Google contends that claim 53 of the '273 patent and claim 7 of the '156 patent are invalid because the claimed inventions would have been obvious in light of the VFLOAT system.

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<sup>46</sup> FCBA Model Instructions § B.4.3c(ii).

<sup>47</sup> SiOnyx Sample Instructions at 45.

**XXII. DAMAGES—GENERALLY<sup>48</sup>**

I will turn next to the issue of damages.

The fact that I am charging you on the issue of damages does not mean that I think damages should be awarded. I am giving you these instructions on damages solely because I am required to charge you on all phases of the case that you might have to consider. If you find that Google infringed an asserted claim, and that the claim is not invalid, you must consider what amount of damages, if any, to award Singular for the infringement. If you determine that any infringement was willful, you may not allow that decision to affect the amount of any damages award you give for infringement. On the other hand, if you find that each and every asserted patent claim is invalid, not infringed, or both, then you should stop and not reach any damages issues. By instructing you on damages, I am not suggesting which party should win this case, on any issue. If you find that Google has not infringed any valid claim of any patent, then Singular is not entitled to any damages.

**XXIII. DAMAGES—BURDEN OF PROOF<sup>49</sup>**

Singular has the burden to establish the amount of its damages, if any, by a preponderance of the evidence. In other words, you should award only those damages that Singular establishes that it more likely than not has suffered. While Singular is not required to prove the amount of its damages with mathematical precision, it must prove them with reasonable certainty. You may not award damages that are speculative, damages that are only possible, or damages that are based on guesswork.

**XXIV. DAMAGES—LIMITED TO U.S. ACTS**

Singular also has the burden of establishing by a preponderance of the evidence that Google used an allegedly infringing device in the United States.<sup>50</sup> If you find that Singular fails to satisfy this burden with respect to any device alleged to infringe, do not include damages for that device (if any exist) in the damages you award Singular (if any).<sup>51</sup> Activity performed outside the country is not infringement under United States law. You may not find Google liable for, or award

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<sup>48</sup> SiOnyx Sample Instructions at 50; FCBA Model Jury Instructions § B.5.1.

<sup>49</sup> FCBA Model Jury Instructions § B.5.1.

<sup>50</sup> See, e.g., 35 U.S.C. § 271 (limiting infringement to acts “within the United States” or importation “into the United States”); *M2M Sols. LLC v. Enfora, Inc.*, 167 F. Supp. 3d 665, 679 (D. Del. 2016) (holding plaintiff bears burden of showing sales occurred in United States); *Trustees of Boston Univ. v. Everlight Elecs. Co., Ltd.*, No. 1:12-cv-11935-PBS (D. Mass. Nov. 23, 2015), ECF 1600 at 33 (instructing jury that the plaintiff bore “the burden of establishing that [a Defendant’s] sales...[we]re U.S. sales by a preponderance of the evidence”); Cf. *Eagle View Techs, Inc. v. Xactware Sols., Inc.*, No. 1:15-cv-07025-RMB-JS, ECF 796 (D. Del. Sep. 26, 2019) (instructing jury on plaintiff’s obligation to prove infringement “within the United States”).

<sup>51</sup> See supra note 49.

damages based on, any making, using, selling, or offering to sell the accused product in other countries.<sup>52</sup>

## **XXV. DAMAGES—NO DUPLICATION<sup>53</sup>**

If you choose to award damages, you must not award damages more than once for the same injury or loss. Singular is only entitled to be made whole, and may not recover more than it has lost.

## **XXVI. DAMAGES – PATENT INFRINGEMENT DAMAGES<sup>54</sup>**

Damages must be adequate to compensate Singular for the infringement. They may not be awarded to punish Google. The award should put Singular in approximately the same financial position that it would have been in if the infringement had not occurred.

Any damages you may award are unrelated to the issue of willful infringement. In other words, if you decide that Google’s infringement was willful, that decision should not affect any damages award you decide to give.

## **XXVII. DAMAGES—REASONABLE ROYALTY<sup>55</sup>**

Singular seeks what is known as a “reasonable royalty” as damages.

A royalty is a payment made to a patent holder in exchange for the right to make, use, or sell the claimed invention. A reasonable royalty is the amount of royalty payment that a patent holder and the accused infringer would have agreed to in a hypothetical negotiation taking place at a time immediately prior to when the infringement first began.

In considering this hypothetical negotiation, you should focus on what the expectations of the patent holder and the alleged infringer would have been had they entered into an agreement at that time, and had they acted reasonably in their negotiations. In determining this, you must assume that both parties believed the patent was valid and infringed and that both parties were willing to enter into an agreement.

The reasonable royalty you determine must be a royalty that would have resulted from the hypothetical negotiation, and not simply a royalty either party would have preferred.

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<sup>52</sup> *WesternGeco LLC v. ION Geophysical Corp.*, 138 S. Ct. 2129, 2137 (2018); *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 441 (2007); *Deepsouth Packing Co., Inc. v. Laitram Corp.*, 406 U.S. 518, 525 n.7, 527, 531 (1972), *superseded in part on other grounds*, 35 U.S.C. § 271(f); *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 650 (1915); *Brown v. Duchesne*, 60 U.S. (19 How.) 183, 195–96 (1856); *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 576 F.3d 1348, 1358, 1362–65 (Fed. Cir. 2009) (en banc).

<sup>53</sup> SiOnyx Sample Instructions at 51.

<sup>54</sup> SiOnyx Sample Instructions at 52.

<sup>55</sup> SiOnyx Sample Instructions at 53.



**XXVIII. DAMAGES—DATE OF COMMENCEMENT OF DAMAGES<sup>56</sup>**

In determining the amount of damages, you must determine when the damages began. Singular contends that damages began on March 1, 2017. Google contends that damages should not begin until the date that Singular filed this lawsuit, which was on December 20, 2019.

If Singular has made, offered for sale, or sold within the United States any product that practices the invention claimed in the asserted '273 and '156 patents, or if it has imported any such product into the United States, then damages commence on the date that Google has both infringed and been notified by Singular of the alleged infringement of the asserted patents.

Singular can give notice in either of two ways. The first way is to give notice to the public in general by marking products that it has made, sold, offered for sale, or imported into the United States that practice the asserted patents. Giving notice in this way requires labeling substantially all such products with the word “patent” or the abbreviation “PAT” and the number of the asserted patents. Singular’s S1 product practices the claimed invention of both asserted patents. Therefore, if Singular did not mark substantially all S1’s with the patent numbers of the asserted patents, then Singular did not provide notice in this way. Singular has the burden of proving by a preponderance of evidence that it gave this form of notice by marking substantially all S1’s that it made, sold, offered for sale, or imported into the United States. There is no exception to the marking requirement for confidential sales or the confidential distribution of a practicing product.<sup>57</sup>

The second way that Singular can give notice is to directly notify Google with a specific claim that the Tensor Processing Units at issue infringe the asserted '273 and '156 patents. The filing of the complaint in this case qualified as such notice.

If you find that Singular’s S1 product was made, sold, or offered for sale in the United States, or imported into the United States, you must determine whether the S1 was marked with the patent numbers of the asserted patents as described earlier. If you find that Singular has not marked substantially all S1’s with the patent numbers of the asserted patents, then damages begin with the filing of the complaint in this case on December 20, 2019.

In summary, if you find infringement, your damages award may not include any damages for any infringement occurring prior to December 20, 2019 unless Singular has proven one of the following by a preponderance of the evidence: (i) that it did not make, offer to sell, sell, or import the S1 product in the United States before December 20, 2019; or (ii) that it complied with the marking requirements before December 20, 2019 by marking substantially all its S1 products.<sup>58</sup>

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<sup>56</sup> FCBA Model Jury Instructions § B.5.10; AIPLA Model Jury Instructions § 10.1.2.

<sup>57</sup> *Bd. of Regents, Univ. of Texas Sys. v. Bos. Sci. Corp.*, No. CV 18-392-GBW, 2023 WL 348325, at \*3 (D. Del. Jan. 20, 2023).

<sup>58</sup> *See Bd. of Regents, Univ. of Texas Sys. v. Bos. Sci. Corp.*, No. CV 18-392-GBW, Dkt. 301-1 at 1 (D. Del. Jan. 20, 2023); *see also Bd. of Regents, Univ. of Texas Sys. v. Bos. Sci. Corp.*, No. CV 18-392-GBW, 2023 WL 348325, at \*3 (D. Del. Jan. 20, 2023).



**XXIX. DAMAGES—REASONABLE ROYALTY—RELEVANT FACTORS<sup>59</sup>**

In determining the reasonable royalty to which the parties would have agreed in a hypothetical negotiation, you should consider all the facts known and available to the parties at the time the infringement began. Some of the kinds of factors that you may consider in making your determination are:

1. The royalties, if any, Singular has received for the licensing of the '273 and '156 patents, proving or tending to prove an established royalty;
2. The rates paid by licensees for the use of other patents comparable to the patent-in-suit;
3. The nature and scope of the license, as exclusive or nonexclusive, or as restricted or nonrestricted, in terms of territory or with respect to whom the manufactured product may be sold;
4. Singular's established policy and marketing program to maintain its patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly;
5. The commercial relationship between Singular and Google, such as whether they are competitors in the same territory in the same line of business, or whether they are inventor and promoter;
6. The effect of selling the patented specialty in promoting sales of other products of Google, the existing value of the invention to Singular as a generator of sales of its nonpatented items, and the extent of such derivative or convoyed sales;
7. The duration of the patent and the terms of the license;
8. The established profitability of the product made under the patents, its commercial success, and its current popularity;
9. The utility and advantages of the patented property over the old modes or devices, if any, that had been used for working out similar results;
10. The nature of the patented invention, the character of the commercial embodiment of it as owned and produced by the licensor, and the benefits to those who have used the invention;
11. The extent to which the infringer has made use of the invention and any evidence probative of the value of that use;
12. The portion of the profit or of the selling price that may be customary in the particular business or in comparable business to allow for the use of the invention or analogous inventions;
13. The portion of the realizable profits that should be credited to the invention as distinguished from non patented elements, the manufacturing process, business risks, or significant features or improvements added by Google;

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<sup>59</sup> SiOnyx Sample Instructions at 54-56; FCBA Model Jury Instructions § B.5.8.

14. The opinion and testimony of qualified experts;
15. The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee—who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention—would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.

No one factor is dispositive. You may consider the evidence that has been presented to you in this case on each of these factors. You may also consider any other factors which in your mind would have increased or decreased the royalty the infringer would have been willing to pay and the patentholder would have been willing to accept, acting as normally prudent business people.

### **XXX. DAMAGES—REASONABLE ROYALTY—AVAILABILITY OF NON-INFRINGEMENT ALTERNATIVES<sup>60</sup>**

In determining a reasonable royalty, you may consider whether Google had non-infringing alternatives to the patented technology that were available at the time of the hypothetical negotiation and whether that would have affected the reasonable royalty the parties would have agreed upon. A non-infringing alternative is a way of providing the same or comparable functionality or achieving the same or a comparable result that does not require using the '273 or '156 patents. A non-infringing alternative need not have been actually used to be relevant to the hypothetical negotiation. You may also consider the utility and advantages of the patented technology over any non-infringing alternatives that could be used for achieving similar results.<sup>61</sup>

### **XXXI. DAMAGES—REASONABLE ROYALTY—SMALLEST SALABLE PATENT PRACTICING UNIT<sup>62</sup>**

Because a multi-component product has both infringing and non-infringing components, in such products, royalties should be based not on the entire product, but instead on the “smallest

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<sup>60</sup> AIPLA Model Jury Instructions § 10.2.5.8; *Prism Techs. LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1376 (Fed. Cir. 2017); *Mars, Inc. v. Coin Acceptors, Inc.*, 527 F.3d 1359, 1372–73 (Fed. Cir. 2008); *Zygo Corp. v. Wyko Corp.*, 79 F.3d 1563, 1571–72 (Fed. Cir. 1996).

<sup>61</sup> *Prism Techs. LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1376 (Fed. Cir. 2017).

<sup>62</sup> AIPLA Model Jury Instructions § 10.2.5.5; see FCBA Model Jury Instructions § B.5.12 n.5 (recognizing that the FCBA does not “address whether considerations related to the smallest saleable patent practicing unit are necessary” and that it “may be necessary to provide an instruction tailored to the specific facts of a case if these issues are in dispute” (citing *Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys.*, 809 F.3d 1295, 1302-04 (Fed. Cir. 2015))). See also *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014) (explaining that “where multi-component products are involved . . . the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more”); *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67 (Fed. Cir.

salable unit” that practices the patent and has close relation to the claimed invention. If the smallest salable unit is a multi-component product containing one or more non-infringing features with no relation to the patented feature(s), damages must only be based on the portion of the value of that product attributable to the patented technology. This may involve estimating the value of a feature that may not have ever been individually sold.

Under Singular’s infringement theory, the relevant limitations of the Asserted Claims involve only sub-components of the TPU chips.

## **XXXII. DAMAGES–APPORTIONMENT<sup>63</sup>**

Upon a finding of infringement, a plaintiff is entitled to compensation only for the infringer’s use of the patented technology. As a result, a plaintiff cannot obtain compensation based on the whole infringing product when the patented technology makes up only a part of that product. In other words, any damages award must apportion (separate out) the value of the TPUs that is attributable to the patented technology.

In this case, that rule means that when you determine a reasonable royalty, you may award damages based only on the revenue that is attributable to the use of the patented technology in infringing features of TPUs, and you must separate and exclude value attributable to non-infringing components and non-infringing functions of those products.<sup>64</sup> You must account for the relative value of the invention in comparison to the value of the conventional elements recited in the claims.<sup>65</sup> In addition, you may not award damages based on Google’s revenue from products that you do not find to have infringed.<sup>66</sup>

Singular bears the burden to establish the amounts attributable to the patented feature and not to other technologies, features, or aspects of the accused product.<sup>67</sup> Singular’s evidence must be reliable and tangible: it cannot be speculative. Any evidence of a reasonable royalty must carefully tie proof of damages to the claimed invention’s role in the marketplace.<sup>68</sup>

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2012) (noting that “it is generally required that royalties be based not on the entire product, but instead on the ‘smallest salable patent-practicing unit’”); *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, at 1318–20 (Fed. Cir. 2011); *Microchip Tech. v. Aptiv Servs.*, No. 1:17-cv-01194- JDW, 2020 WL 5203600, at \*6 (D. Del. Sept. 1, 2020) (applying SSPPU requirement to royalties based on a cost-savings approach).

<sup>63</sup> FCBA Model Jury Instructions § B.5.12.

<sup>64</sup> *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1310–11 (Fed. Cir. 2018).

<sup>65</sup> *Astrazeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1328 (Fed. Cir. 2015).

<sup>66</sup> *Enplas Display Dev. Corp. v. Seoul Semiconductor Co.*, 909 F.3d 398, 411–12 (Fed. Cir. 2018).

<sup>67</sup> *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 646–47 (1915); *Garretson v. Clark*, 111 U.S. 120, 121 (1884); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1337–38 (Fed. Cir. 2009).

<sup>68</sup> *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1349–50 (Fed. Cir. 2018); *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1326–28 (Fed. Cir. 2014).

**XXXIII. DAMAGES—ENTIRE MARKET VALUE RULE**

Patented technology is often used or sold together with other components and features that are not covered by the patent. When patented technology is used in combination with non-patented features or components, damages may not be awarded based on the value of the entire combination unless the patent owner proves that the patented invention is of such paramount importance that it substantially created the value of those non-patented features. In other words, the patented invention must be the basis for customer demand for the product as a whole. Because it is unusual for claims drawn to an individual component or feature of a multi-component product to be the basis for customer demand for the product as a whole, damages based upon the entire value of a multi-component product are the exception, not the rule.<sup>69</sup>

In this case, that means that you may not award damages based on the entire value of the TPUv2 and TPUv3 unless Singular proves that the portion covered by the patents was the sole driver of customer demand for the entire product or substantially created the value of all other features.<sup>70</sup> If the TPUv2 and TPUv3 has other valuable features not claimed in the patents that also contribute to consumer demand, then damages must be limited to reflect only the value of the patented feature.

**XXXIV. FOREPERSON’S ROLE; UNANIMITY<sup>71</sup>**

I come now to the last part of the instructions, the rules for your deliberations. When you retire, you will discuss the case with the other jurors to reach agreement if you can do so. You shall permit your foreperson to preside over your deliberations, and your foreperson will speak for you here in court. Your verdict as to each claim must be unanimous—that is, all of you must agree on the verdict.

**XXXV. REACHING AGREEMENT<sup>72</sup>**

Each of you must decide the case for yourself, but you should do so only after considering all the evidence, discussing it fully with the other jurors, and listening to the views of the other jurors.

Do not be afraid to change your opinion if you think you are wrong. But do not come to a decision simply because other jurors think it is right.

It is important that you reach a verdict if you can do so conscientiously. You should not hesitate to reconsider your views from time to time and to change them if you are persuaded that this is appropriate.

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<sup>69</sup> *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1326 (Fed. Cir. 2014).

<sup>70</sup> *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 979 (Fed. Cir. 2018).

<sup>71</sup> SiOnyx Sample Instructions at 57.

<sup>72</sup> SiOnyx Sample Instructions at 58.

It is important that you attempt to return a verdict, but of course, only if each of you can do so after having made your own conscientious determination. Do not surrender an honest conviction as to the weight and effect of the evidence simply to reach a verdict.

#### **XXXVI. RETURN OF VERDICT FORM<sup>73</sup>**

I want to explain to you now what is called the verdict form. This is simply the written notice of the decision you will reach in this case.

[The court explains the verdict form.]

After you have reached a unanimous agreement on a verdict, your foreperson will fill in the form that has been given to you, sign and date it, and advise the jury officer outside your door that you are ready to return to the courtroom.

After you return to the courtroom, your foreperson will deliver the completed verdict form as directed in open court.

#### **XXXVII. COMMUNICATION WITH THE COURT<sup>74</sup>**

If it becomes necessary during your deliberations to communicate with me, you may send through the jury officer a note signed by your foreperson or by one or more members of the jury. No member of the jury should ever attempt to communicate with me on anything concerning the case except by a signed writing, and I will communicate with any member of the jury on anything concerning the case only in writing, or orally here in open court. If you send out a question, I will consult with the parties as promptly as possible before answering it, which may take some time. You may continue with your deliberations while waiting for the answer to any question.

When you are communicating with me, please do not tell me—or anyone else—how the jury stands numerically or toward which decision the jury is leaning.

#### **XXXVIII. GLOSSARY OF TERMS<sup>75</sup>**

1. **Abstract:** A brief summary of the technical disclosure in a patent to enable the U.S. Patent and Trademark Office and the public to determine quickly the nature and gist of the technical disclosure in the patent.
2. **Anticipation:** A situation in which a claimed invention is described in a single piece of prior art and, therefore, is not considered new and is not entitled to be patented.
3. **Claim:** Each claim of a patent is a concise, formal definition of an invention and appears at the end of the specification in a separately numbered paragraph.

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<sup>73</sup> SiOnyx Sample Instructions at 59.

<sup>74</sup> SiOnyx Sample Instructions at 60.

<sup>75</sup> FCBA Model Jury Instructions § C.

In concept, a patent claim marks the boundaries of the patent in the same way that a legal description in a deed specifies the boundaries of land, i.e., similar to a landowner who can prevent others from trespassing on the bounded property, the inventor can prevent others from using what is claimed. Claims may be independent or dependent. An independent claim stands alone. A dependent claim does not stand alone and refers to one or more other claims. A dependent claim incorporates whatever the other referenced claim or claims say.

4. **Elements:** The required parts of a device or the required steps of a method. A device or method infringes a patent if it contains each and every requirement of a patent claim.
5. **Embodiment:** A product or method that contains the claimed invention.
6. **Filing Date:** Date a patent application, with all the required sections, has been submitted to the U.S. Patent and Trademark Office.
7. **Infringement:** Violation of a patent occurring when someone makes, uses, or sells a patented invention, without permission of the patent holder, within the United States during the term of the patent.
8. **Limitation:** A required part of an invention set forth in a patent claim. A limitation is a requirement of the invention. The word "limitation" is often used interchangeably with the word "requirement."
9. **Nonobviousness:** One of the requirements for securing a patent. To be valid, the subject matter of the invention must not have been obvious to a person of ordinary skill in the field at the time of the filing date of the patent application.
10. **Patent:** A patent is an exclusive right granted by the U.S. Patent and Trademark Office to an inventor to prevent others from making, using, or selling an invention for a term of 20 years from the date the patent application was filed (or, in some cases, 17 years from the date the patent issued). When the patent expires, the right to make, use, or sell the invention is dedicated to the public. The patent has three parts, which are a specification, drawings and claims. The patent is granted after examination by the U.S. Patent and Trademark Office of a patent application filed by the inventor which has these parts, and this examination is called the prosecution history.
11. **Patent and Trademark Office (PTO):** An administrative branch of the U.S. Department of Commerce that is charged with overseeing and implementing the federal laws of patents and trademarks. It is responsible for examining all patent applications and issuing all patents in the United States.
12. **Patent prosecution:** Procedure before the U.S. Patent and Trademark Office whereby an Examiner reviews the filed patent application to determine if the claimed invention is patentable.
13. **Prior Art:** Evidence that the claimed invention was already known or would have been obvious. This evidence includes items that were publicly known or

that have been used or offered for sale, or references such as publications or patents.

14. **Prosecution History:** The prosecution history is the complete written record of the proceedings in the PTO from the initial application to the issued patent. The prosecution history includes the office actions taken by the PTO and the amendments to the patent application filed by the applicant during the examination process.
15. **Royalty:** A royalty is a payment made to the owner of a patent by a nonowner in exchange for rights to make, use, or sell the claimed invention.
16. **Specification:** The specification is a required part of a patent application and an issued patent. It is a written description of the invention and of the manner and process of making and using the claimed invention.

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

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/s/ Nathan R. Speed

Nathan R. Speed